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| 10/706,069      | 11/12/2003  | Burak A. Gecim       | GP-302576           | 6365             |

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EXAMINER

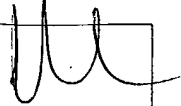
CHANG, CHING

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

3748

DATE MAILED: 10/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |                                                                                                                        |  |
|------------------------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/706,069 | <b>Applicant(s)</b><br>GECIM ET AL.  |  |
|                              | <b>Examiner</b><br>Ching Chang       | <b>Art Unit</b><br>3748                                                                                                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-14, 16-24, 26, 27, 29 and 30 is/are rejected.
- 7) ☒ Claim(s) 15, 25 and 28 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                                                 |                                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                            | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/12/2003</u> . | 6) <input type="checkbox"/> Other: ____                                                |

## DETAILED ACTION

### *Claim Objections*

1. Claims 16-30 are objected to because of the following informalities:

- " said rocker arm " in claim 16 appears to be -- a rocker arm --.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. ***Claims 1-2, 8-9, 11, and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Djordjevic et al. (US Patent 6,732,687).***

Djordjevic discloses a valve actuator assembly comprising: a movable engine valve (12); a movable finger (20) for contact with said engine valve; a rotatable cam (16) for contact with said finger; and a finger-support element assembly (26) for contact with said finger comprising a first piston (36) and a second piston (38)(also See Figs. 4A, 7,

8A-8F), said first piston and said second piston axially aligned and independently movable in the same direction to provide full lift of said engine valve in an activated mode (See Fig. 1) and lost motion of said engine valve in a de-activated mode(See Fig. 3) (See Col. 3, line 58 through Col. 7, line 45); wherein said finger-support element assembly includes a housing (44); wherein said first piston and said housing share a common interface (through 42B) that has a sufficiently small clearance to control leak-down of high-pressure fluid supporting said first piston in an engine valve fully-active mode; wherein said second piston and said housing share a common interface (through 44A) that has a sufficiently large clearance enable high-speed reciprocating motion of said second piston without significant drag losses when said engine valve is not fully active (See Col. 3, line 58 through Col. 7, line 45); a control valve fluidly communicating with said first piston of said finger- support element assembly and a fluid source (See ABSTRACT); wherein said second piston has a lubricant channel (through 48) extending therethrough to provide a lubricant flow to the contact between said finger and said second piston.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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**5. Claims 3, and 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Djordjevic (as applied to claim 2/1 above) in view of Molitor et al. (US Patent 5,485,813).**

Djordjevic further discloses the said second piston is partially disposed in said housing and extends axially through an aperture in said housing for contact with said finger (See Fig. 4A, 5A, 7), and is urged by a spring (54A).

Djordjevic, however, fails to disclose the said housing including a dividing wall with an aperture.

The patent to Molitor on the other hand, teaches that it is conventional in the lost motion actuator art, to have utilized pistons (38, 36) having hollow shafts, and a dividing wall (54) with an aperture (56) of the housing of an actuator (14) to form a chamber (48, 46) therein.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the pistons with hollow shafts, and the dividing wall with an aperture as taught by Molitor in the Djordjevic device, in order to form a chamber and to have the spring disposed in between said dividing wall and said second piston, since the use thereof would provide a bias force acting on the second piston of an engine valve actuator.

**6. Claims 4-5, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Djordjevic in view of Molitor et al. (as applied to claim 3/2/1), and further in view of Geyer (US Patent 2,935,048).**

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The modified Djordjevic device, however, fails to disclose the said first piston comprises a head being disposed in said chamber and a shaft extending axially from said head and through an aperture said dividing wall.

The patent to Geyer on the other hand, teaches that it is conventional in the art of actuator assembly, to have utilized a piston (17) having a head being disposed in a chamber (of 10) and a shaft (See Fig. 1-3) extending axially from said head and through bushing (32, 42).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the piston as taught by Geyer as the first piston in the modified Djordjevic device, since the use thereof would provide an improved engine valve actuator with a better structure strength.

**7. Claims 12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Djordjevic (as applied to claims 11/1, and 13/1 above) in view of Molitor et al. (US Patent 5,485,813).**

Djordjevic discloses the invention, however, fails to disclose one-way valves being used to adjust the pistons movement.

The patent to Molitor on the other hand, teaches that it is conventional in the art of lost motion actuator, to have utilized a one-way valve (32) to adjust the pistons (38, 36) movement.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the one-way valve as taught by Molitor in the

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Djordjevic device, since the use thereof would provide a proper control of the piston movement in an engine valve actuator.

8. ***Claims 16-17, 20-24, 26-27, and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Djordjevic (US Patent 6,732,687) in view of Molitor et al. (US Patent 5,485,813).***

Djordjevic discloses a valve actuator assembly comprising: a movable engine valve (12); a movable finger (20) for contact with said engine valve; a rotatable cam (16) for contact with said finger; and a finger-support element assembly (26) for contact with said finger comprising a housing, a first piston (36) disposed said housing (44), a second piston (38) (also See Figs. 4A, 7, 8A-8F) being partially disposed said housing and axially aligned with said first piston, and a second spring (54A) disposed in said housing to urge said second piston into contact with a rocker arm (20), said first piston and said second piston being independently movable in the same direction to provide lift of said engine valve in an activated mode (See Fig. 1) and lost motion of said engine valve in a de-activated mode (See Fig. 3); wherein said finger-support element assembly includes a housing (44); wherein said second piston is partially disposed in said housing and extends axially through an aperture in said housing for contact with said finger (See Figs. 4A, 5A, 7); wherein including a control valve fluidly communicating with said first piston said finger-support element assembly and a fluid source (See ABSTRACT); wherein said second piston has a lubricant channel (through 48) extending therethrough to provide a lubricant flow to the contact between

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said finger and said second piston; wherein said first piston and said housing share a common interface (through 42B) that has a sufficiently small clearance to control leak-down of high-pressure fluid supporting the said first piston fully-active mode; wherein said second piston and said housing share a common interface (through 44A) that has a sufficiently large clearance to enable high-speed reciprocating motion of said second piston without significant drag losses when the engine valve is not fully active (See Col. 3, 58 through Col. 7, line 45).

Djordjevic, however, fails to disclose the said housing including a dividing wall with an aperture, and a first spring disposed in said housing to urge said first piston away from said second piston

The patent to Molitor on the other hand, teaches that it is conventional in the art of lost motion actuator, to have utilized pistons (38, 36) having hollow shafts, a dividing wall (54) with an aperture (56) of the housing of an actuator (14) to form a chamber (48, 46) therein, and a first spring (58) disposed in said housing to urge a first piston (36) away from a second piston (38); wherein said first piston has a first head and said second piston has a second head, said first head and said second head both including a hollow section formed concentrically around their respective shafts to house a compressed thickness of said first and second springs, respectively (See Fig. 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the pistons with hollow shafts, the dividing wall with an aperture, and the first spring as taught by Molitor in the Djordjevic device, in order to form a chamber and to have the spring disposed in between said dividing wall and said



second piston, since the use thereof would provide a bias force acting on the second piston of an engine valve actuator.

9. ***Claims 22, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Djordjevic (as applied to claims 21/16, and 23/16 above) in view of Molitor et al. (US Patent 5,485,813).***

Djordjevic discloses the invention, however, fails to disclose one-way valves being used to adjust the pistons movement.

The patent to Molitor on the other hand, teaches that it is conventional in the art of lost motion actuator, to have utilized a one-way valve (32) to adjust the pistons (38, 36) movement.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the one-way valve as taught by Molitor in the Djordjevic device, since the use thereof would provide a proper control of the piston movement in an engine valve actuator.

10. ***Claims 18-19, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Djordjevic in view of Molitor et al. (as applied to claim 17/16), and further in view of Geyer (US Patent 2,935,048).***

The modified Djordjevic device, however, fails to disclose the said first piston comprises a head being disposed in said chamber and a shaft extending axially from said head and through an aperture said dividing wall.

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The patent to Geyer on the other hand, teaches that it is conventional in the art of actuator assembly, to have utilized a piston (17) having a head being disposed in a chamber (of 10) and a shaft (See Fig. 1-3) extending axially from said head and through bushing (32, 42).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the piston as taught by Geyer as the first piston in the modified Djordjevic device, since the use thereof would provide an improved engine valve actuator with a better structure strength.

### ***Allowable Subject Matter***

11. Claims 15, 25, and 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Lou (US Patent 6,536,388).
- Warburton et al. (US Patent 5,749,340).
- Scharnweber (US Patent 5,682,846).

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13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ching Chang whose telephone number is (703)306-3478. The examiner can normally be reached on M-Th, 7:00 AM -5:00 PM.

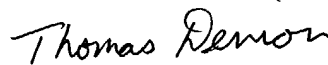
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (703)308-2623. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner



Ching Chang



THOMAS DENION  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3700